

REMARKS

Entry of the foregoing, reexamination and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

As correctly noted in the Office Action Summary, claims 1-22 were pending, claims 16-17 having been withdrawn from consideration. By the present response, claims 2, 15, 19 and 22 have been amended and claims 23-24 have been added. Thus, upon entry of the present response, claims 1-24 remain pending (with claims 16-17 having been withdrawn from consideration) and await further consideration on the merits.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: the original claims, and the specification, paragraphs [0038] and [0039].

RESTRICTION REQUIREMENT UNDER 35 U.S.C. §121

Applicants hereby affirm the provisional election made with traverse of Group I, claims 1-15 and 18-22, and made with traverse in a telephone conversation with the Examiner. The grounds for traverse are as follows.

In order to properly maintain a restriction requirement under 35 U.S.C. §121, two distinct criteria must be satisfied. Namely, as set forth in MPEP §803, (1) the subjects of the claimed inventions must be shown to be either distinct or independent, and (2) it must be shown that examination of the two separately claimed inventions together in a single application would pose a "serious burden" to the Examiner. It is submitted that at least the

second of these criteria has not been satisfied. In particular, the nature and relationship between the two separately claimed inventions are such that examination together of claims 1-22 in a single application would not pose a "serious burden" to the Examiner. Thus, reconsideration and withdrawal of the restriction requirement is respectfully requested.

ABSTRACT

Applicants have amended the Abstract and respectfully request reconsideration of this objection.

CLAIM OBJECTIONS

Claim 22 is objected to because of an informality. Claim 22 has been amended to address the objection by amending "on" to "one." Reconsideration and withdrawal of the objection is respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §112

Claims 2-4, 15 and 19 stand rejected under 35 U.S.C. §112, second paragraph on the grounds set forth in paragraph 9 of the Official Action.

By the present response, Applicants have amended claims 2 and 15 to clarify the terms "an outer periphery" and "the plurality of individual conductors," respectively. Reconsideration and withdrawal of the rejection is respectfully requested.

With regard to claim 19, Applicants direct the attention of the Examiner to paragraphs [0038] and [0039] of the application in which the support sleeve 62 is described

as having a helically arranged perforation 66 for removal of the support sleeve. In an embodiment of the method disclosed at paragraph [0039], the support sleeve 62 is subsequently removed from between the shrink-on sleeve 64 and the conductor bar 2 by helically opening the support sleeve 62 along helically arranged perforations 66. In this sense, the term opening is used as a verb, not as a noun, and describes the separation of the support sleeve 62 along helically arranged perforations 66. From the above, it is respectfully submitted that claim 19 as originally written is not indefinite. However, to clarify claim 19, the claim has been amended. Withdrawal of the rejection is respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

Claims 1-3, 5-6, 12-15, 18, and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,497,737 to Philofsky (hereafter "*Philofsky*") in view of applicants' admitted prior art in the specification of the present application and U.S. Patent No. 5,859,385 to Nicolai (hereafter "*Nicolai*") on the grounds set forth in paragraph 11 of the Official Action.

For at least the reasons noted below, this rejection should be withdrawn.

The presently claimed invention is directed to a method for producing an insulated stator lining for a rotating electrical machine. Exemplary embodiments of the claimed method comprise the steps of applying at least one electrically insulating shrink-on sleeve with a rectangular cross-section to a periphery of at least one electrically conductive

conductor bar with a rectangular cross-section and shrinking the shrink-on sleeve onto the conductor bar.

The rejection based on a hypothetical combination of the disclosures contained in *Philofsky*, Applicants' admitted prior art in the specification and *Nicolai* is improper because the Official Action has not established any motivation that would have directed one of ordinary skill to modify the device described in *Philofsky* in the manner set forth in the Official Action. Indeed, detailed consideration of the disclosures in *Philofsky*, Applicants' specification, and *Nicolai* reveals that no basis exists for modifying the method and/or device disclosed in *Philofsky*, in light of the disclosures in Applicants' specification and *Nicolai*, in the manner contemplated in the Official Action.

The disclosure in *Philofsky* relied upon in the Official Action is directed to a connector for use in cooling systems of large turbine generators of the inner cooled type. See column 1, lines 14-15. The stator windings of the inner-cooled construction disclosed in *Philofsky* comprise a plurality of hollow, generally rectangular conductors 17 which are lightly insulated. The insulation of the conductors 17 is shown at 18 in Figure 3, in which one of the hollow conductors 17 is illustrated. See column 2, lines 69-71. Thus, in contrast to the assertion in the Official Action on page 5, *Philofsky* is not silent as to the sheath being shrunk onto the conductor bars. Rather, *Philofsky* references Figure 3 to show that the insulation 18 of the conductor 17 is of a conventional wrap type.

A person with ordinary skill in the art of rotating electrical machines at the time of the *Philofsky* disclosure, as well as today, would understand that electrical machine stator windings are generally insulated in a combined taping, impregnation, and curing process.

This conventional wrap-type insulation, Applicants respectfully assert, is what is disclosed in *Philofsky*.

Further, one of ordinary skill in the art at the time of the *Philofsky* disclosure would have understood that the heavy sheath insulation 19 generally consists of several layers of glass-mica tape, bonded by a brittle, inelastic thermoset material (e.g., epoxy) wherein the rectangular shape is produced by having the tape insulation on the conductor in a mold during impregnation and curing. Additionally, elastomers used in conventional processes (such as silicone elastomers) are conventionally understood to have bad electrical properties since they are generally condensation type materials and the corrosive by-products developed during manufacturing are unacceptable in electrical applications. Further, these conventional materials are too expensive to be used in commercial electrical machines of the time.

Therefore, in the whole, the disclosure in *Philofsky* is not, as asserted in the Official Action, silent as to the sheath being shrunk onto the conductor bars, but rather discloses a conventional taping, impregnation, and curing process commonly known at the time.

The Official Action relies upon Applicants' alleged disclosure that it is known in the art to produce a stator winding by shrinking an insulating shrink sleeve onto a plurality of conductors as opposed to winding/wrapping the insulators onto the conductors. The Official Action also relies upon the disclosure in *Nicolai*, referenced at column 1, lines 15-20, that it is known in the art to insulate conductors by shrinking a shrink sleeve onto the conductors. Applicants respectfully disagree with the interpretation of both applicants' alleged disclosure and the disclosure in *Nicolai*.

First, with respect to Applicants' alleged disclosure, Applicants respectfully traverse the Examiner's assertion of the alleged description of the prior art presented by the Applicants in the present specification. Applicants' background portion of the specification does not include solutions with shrink-on sleeves on the conductor stator windings of rotating electrical machines. Rather, on the one hand, Applicants describe conventional insulation technology for electrical machines as wrapping tapes, impregnation and curing. See paragraph [0006] and [0007]. On the other hand, Applicants describe as conventional in cable technology the use of shrink-on sleeves. See paragraph [0008] and [0009]. Applicants specifically note that the conventional cable technology cannot be used to insulate conductors of stator windings of rotating electrical machines due to the different boundary conditions in the application to rotating electrical machines. See paragraphs [0007] and [0010].

Thus, Applicants have not admitted "that it is known in the art to produce a stator winding by shrinking an insulating shrink sleeve onto a plurality of conductors" as alleged in the Official Action at page 5.

Rather, Applicants' own disclosure references taping, impregnation, and curing as the conventional technique for insulating conductors of stator windings of rotating electrical machines (similar to that disclosed in *Philofsky*). Accordingly, because there is no teaching or suggestion in Applicants disclosure of prior art "to produce a stator winding by shrinking an insulating shrink sleeve onto a plurality of conductors," there can be, a priori, no teaching or suggestion to motivate one of skill in the art to combine the disclosure in

Applicants' background with the disclosure in *Philofsky*. For at least the above noted reasons, the rejection should be withdrawn.

Furthermore, Applicants have disclosed, at best, the use of shrink-on sleeves in cable technology. This is quite different from stators of rotating electrical machines. For example, transferring technology from a circular cross-section to a rectangular cross-section is not trivial, as one would have to address stress concentrations at the corners of the rectangular cross-section not encountered in the circular cross-section of cable technology. In addition, shrink sleeves for cable technology generally connect only the portion of the cable that is at a connection location, e.g., a small axial length, and does not have to address the distances encountered in insulating stator windings, which can be from one meter up to ten meters of continuous length. Finally, the circular cross-section of cable shrink-on technology does not address the requirement for electrical insulation at the field concentration locations of a rectangular cross-section stator in a rotating electrical machine.

In light of the differences between the disclosure of cable circular cross-section shrink-on technology and the disclosure of cable technology in *Nicolai*, Applicants respectfully assert that there is no motivation established in the Official Action to combine these technologies with the conventional tape-impregnation, and curing technology disclosed in *Philofsky*. A person considering the disclosures contained in the cited documents would not have been directed to modify the construction of the stator in *Philofsky*, which has insulation that is taped, impregnated and cured, by the disclosure of cable shrink sleeve technology in Applicants' specification and/or in the disclosure of

Nicolai. Indeed, in some respects as discussed above, a circular cross-section shrink sleeve used in cable technology is inappropriate to be used in the rectangular cross-section of Applicants' stator winding for rotating electrical machines.

For at least these reasons, the proposed modification is improper, as no motivation exists for modifying the conventional technology described in *Philofsky* in light of the disclosures contained in Applicants' specification or *Nicolai*. Accordingly, withdrawal of the rejection is respectfully requested.

Assuming for the sake of argument that some motivation would have existed for the hypothetical combination of *Philofsky*, Applicants' specification, and *Olsen et al*, application of the noted features described in Applicants' specification and the disclosure in *Nicolai* to the stator windings described in *Philofsky* would not have resulted in a method for producing an insulated stator windings for a rotating electrical machine having the claimed combination and arrangement of features recited in claim 1. The shrink-on sleeves used in cable technology disclosed in Applicants' specification and in *Nicolai* have completely different boundary conditions, different design, and different function than the shrink-on sleeve disclosed for a rectangular cross-section stator of a rotating electrical machine. For example, applying the circular cross-sectional sleeve of *Nicolai* on a conductor with a rectangular cross-section would result in insulation where ground wall thickness would be significantly reduced at the corner edges of the conductor. This is unacceptable due to the increased electrical stress at the reduced insulation thickness. Additionally, rupture of the sleeve after application to the conductor due to mechanical stress concentration is very likely, as described in the instant application. See paragraph

[0010]. Thus, Applicants respectfully submit that even if one were to combine the references as proposed in the Official Action, Applicants' claimed method would not have resulted. Accordingly, withdrawal of the rejection is respectfully requested.

The rejection of dependent claims 2-3, 5-6, 12-15, 18 and 21 should also be withdrawn for at least the same reason as discussed above with respect to independent claim 1.

Claims 7-9 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Philofsky*, applicants' admitted prior art, and *Nicolai* as applied to claim 1 above, and further in view of *Mohebban et al.* on the grounds set forth in paragraph 12 of the Official Action.

Claim 11 stands rejected under 35 U.S.C. §103(a) as being unpatentable *Philofsky*, applicants' admitted prior art, and *Nicolai* as applied to claim 1 above, and further in view of *Dienes* on the grounds set forth in paragraph 13 of the Official Action.

With respect to the dependent claim 7-9, 11 and 22, neither the disclosures in U.S. Patent No. 4,589,939 to Mohebban et al. (hereafter "*Mohebban et al.*") nor U.S. Patent No. 3,946,480 to Dienes (hereafter "*Dienes*") contribute to overcome the noted deficiencies in the primary references. Accordingly, Applicants respectfully assert that the dependent claims are distinguishable over the combined disclosure, teachings and suggestions in the cited references for at least the same reasons as noted above with respect to claim 1. Accordingly, withdrawal of the rejection is respectfully requested.

ALLOWABLE SUBJECT MATTER

Applicants note with appreciation the indication that claims 4 and 20 would be allowable if rewritten to overcome the rejection under 35 U.S.C. §112, second paragraph, set forth in the Official Action and to include all of the limitations of the base claim and any intervening claims.

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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